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*Merope* out of the field. It was very faint, and the only definite feature was the *f* edge, which, however, was quite plain. I carefully noticed its position among the stars, and afterwards looked at the *Monthly Notices*, vol. xl., and found that its position was almost exactly the same as in Tempel's drawing, p. 622. Taking the squares in that drawing to be 15′ in length, the two brightish stars in it at about 5′ and 10′ off *Merope* were upon the *f* edge; while the bright star about 16′ off *Merope* was outside it, rather further off it than in Tempel's sketch, only I suspected that the nebula came up to that star, but more faintly.

Mr. Common's drawing, page 376, appears to be very rough, or perhaps he has confounded two stars, for his principal nebula does not touch the nebula as I saw it: indeed, the sky is perfectly dark where he draws it.

On February 18 I looked for the *n* edge of the nebula, but could not detect it with any certainty, owing to the brightness of the neighbouring stars; *Electra* at least being in the field at the same time.

*Sunderland:*
1882, *April* 25.

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## *Determination of the Orbit of η Cassiopeiæ.* By J. B. Coit, Esq.

(*Communicated by the Astronomer Royal.*)

I have recently completed a determination of an orbit for this beautiful binary, and a comparison of the same with all the observations at my command.

Before giving my results I would offer a few suggestions concerning the work, which, to my mind, is most needed in the line of double-star observations.

There is at present a manifest tendency upon the part of many to encourage the search for new pairs, to the neglect of the old binaries of Herschel and Struve. It is undoubtedly desirable that our catalogue of multiple stars should be extended as far as possible, in order that we may investigate the law of their distribution. At the same time, however, it is of primary importance that the orbits of several binaries be determined with all possible precision, for by this means alone can we hope to discover the laws which govern their motions, and the forces that rule in these sidereal systems. To accomplish this, the computer needs multiplied observations, with all the data that can enable him to properly determine the relative weight of each measurement.

I suggest, then, that all the systematic labour possible be centred upon a definite list of binaries, representing fairly the different classes, as to period, eccentricity, &c., as already approximately determined. If this work were faithfully done, though the present generation might see but little of the fruits

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of the labour, the future computer, with the data furnished by our concentrated efforts, would be enabled to determine the orbits with all needed definiteness.

The following is the orbit determined for $\eta$ *Cassiopeiæ* :—

$P = 167{\cdot}4$ years.
$T = 1904{\cdot}0$ A.D.
$\lambda = 233^{\circ}{\cdot}1$
$\gamma = 52{\cdot}09$
$\Omega = 41{\cdot}02$
$\epsilon = 0{\cdot}622$
$a = 8''{\cdot}702$

This would give a mean distance 56·5 times our mean distance from the Sun, and a mass 6·4 times that of our Sun, if we accept the parallax as given by O. Struve, viz. 0″·154.

The annexed table exhibits the comparison of this orbit with the observations at hand. The computation is carried only to the first decimal place, as this seemed to be the degree of accuracy warranted by the discordant character of the observations, which is revealed as soon as they are arranged in chronological order. By tabulating the comparison with different observers many interesting results might be discovered, which we have not the space here to note. Without assuming for the above orbit absolute accuracy, it is safe to affirm that some of the observations are affected by a systematic error.

In the following table $\theta_c$ indicates the angle as computed by this orbit; $\theta_o$ the angle given by the observer, reduced to 1881·0, for those dates where the correction would be appreciable. $\theta_c - \theta_o$ presents the resulting residuals. Similarly for the distances $\rho_c$ and $\rho_o$.

*Mr. L. E. Holden's Observatory,*
*Cleveland, Ohio:*
1882, *April* 12.

| Observer. | No. | Epoch. | $\theta_c$ | $\theta_o$ | $\theta_c - \theta_o$ | $\rho_c$ | $\rho_o$ | $\rho_c - \rho_o$ |
|---|---|---|---|---|---|---|---|---|
| W. Herschel | 1 | 1779·80 | — | | — | 11″·1 | 11″·1 | 0″·0 |
| ,, | 2 | 1780·50 | — | | — | 11·1 | 11·5 | −0·4 |
| ,, | 3 | 1782·40 | 57°·6 | 61°·0 | −3°·4 | 11·1 | — | |
| ,, | 4 | 1803·10 | 69·5 | 70 8 | −1·3 | 11·6 | — | |
| Struve | 5 | 20·16 | 80·0 | 81·2 | −1·2 | 10·9 | 10·7 | +0·2 |
| Hers. & South | 6 | 21·90 | 81·0 | 82·9 | −1·9 | 10·8 | 8·8 | +2·0 |
| ,, | 7 | 25·78 | 83·7 | 83·2 | +0·5 | 10·5 | 9·9 | +0·6 |
| Struve | 8 | 27·21 | 84·6 | 85·7 | −1·1 | 10·4 | 10·2 | +0·2 |
| Hers. & South | 9 | 28·90 | 85·9 | 86·5 | −0·6 | 10·3 | 12·0 | −1·7 |

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| Observer. | No. | Epoch. | $\theta_c$ | $\theta_o$ | $\theta_c-\theta_o$ | $\rho_c$ | $\rho_o$ | $\rho_c-\rho_o$ |
|---|---|---|---|---|---|---|---|---|
| | | | ° | ° | ° | ″ | ″ | ″ |
| Bessel | 10 | 1830·75 | 87·2 | 86·3 | +0·9 | 10·1 | 10·1 | 0·0 |
| Smyth | 11 | 30·91 | 87·3 | 87·9 | −0·6 | 10·1 | 9·8 | +0·3 |
| ,, | 12 | 31·92 | 88·2 | 88·3 | −0·1 | 10·0 | 9·9 | +0·1 |
| Struve | 13 | 32·05 | 88·3 | 87·7 | +0·6 | 10·0 | 9·8 | +0·2 |
| Dawes | 14 | 32·87 | 89·0 | 88·7 | +0·3 | 9·9 | 9·7 | +0·2 |
| Smyth | 15 | 33·74 | 89·6 | 89·0 | +0·6 | 9·9 | 9·9 | 0·0 |
| Bessel | 16 | 34·76 | 90·4 | 89·7 | +0·7 | 9·8 | 9·8 | 0·0 |
| Smyth | 17 | 35·20 | 90·8 | 91·0 | −0·2 | 9·7 | 9·7 | 0·0 |
| Struve | 18 | 35·26 | 90·9 | 91·3 | −0·4 | 9·7 | 9·5 | +0·2 |
| ,, | 19 | 36·74 | 92·0 | 92·2 | −0·2 | 9·6 | 9·4 | +0·2 |
| Smyth | 20 | 36·81 | 92·1 | 92·1 | 0·0 | 9·6 | 9·4 | +0·2 |
| Encke | 21 | 37·62 | 92·7 | 92·6 | +0·1 | 9·5 | 9·6 | −0·1 |
| Galle | 22 | 38·68 | 93·7 | 92·7 | +1·0 | 9·4 | 9·5 | −0·1 |
| Kaiser | 23 | 40·43 | 95·2 | 95·9 | −0·7 | 9·2 | 9·0 | +0·2 |
| G. O. | 24 | 40·44 | 95·2 | 96·5 | −1·3 | 9·2 | 9·0 | +0·2 |
| O. Struve | 25 | 41·34 | 96·1 | 98·2 | −2·1 | 9·2 | 9·2 | 0·0 |
| Mädler | 26 | 41·57 | 96·3 | 96·5 | −0·2 | 9·1 | 9·2 | −0·1 |
| Dawes | 27 | 41·80 | 96·5 | 95·8 | +0·7 | 9·1 | 9·3 | −0·2 |
| Mädler | 28 | 42·39 | 97·0 | 98·4 | −1·4 | 9·0 | 8·7 | +0·3 |
| Smyth | 29 | 43·19 | 97·8 | 95·9 | +1·9 | 9·0 | 9·4 | −0·4 |
| Mädler | 30 | 44·56 | 99·1 | 100·2 | −1·1 | 8·8 | 8·6 | +0·2 |
| ,, | 31 | 45·39 | 100·0 | 102·0 | −2·0 | 8·7 | 8·5 | +0·2 |
| ,, | 32 | 46·67 | 101·3 | 101·2 | +0·1 | 8·6 | 8·6 | 0·0 |
| Smyth | 33 | 46·73 | 101·3 | 101·6 | −0·3 | 8·6 | 8·5 | +0·1 |
| D. O. | 34 | 47·08 | 101·8 | 104·1 | −2·3 | 8·6 | 8·8 | −0·2 |
| O. Struve | 35 | 47·40 | 102·0 | 101·8 | +0·2 | 8·5 | 8·5 | 0·0 |
| Mädler | 36 | 47·42 | 102·0 | 102·8 | −0·8 | 8·5 | 8·3 | +0·2 |
| Miller | 37 | 47·60 | 102·2 | 101·5 | +0·7 | 8·5 | 8·6 | −0·1 |
| Mitchel | 38 | 47·63 | 102·2 | 101·4 | +0·8 | 8·5 | 8·6 | −0·1 |
| O. Struve | 39 | 49·66 | 104·5 | 105·0 | −0·5 | 8·3 | 8·3 | 0·0 |
| Mädler | 40 | 50·80 | 105·8 | 106·6 | −0·8 | 8·2 | 8·0 | +0·2 |
| Jacob | 41 | 50·87 | 105·9 | 105·6 | +0·3 | 8·2 | 8·2 | 0·0 |
| Mädler | 42 | 51·76 | 107·0 | 107·0 | 0·0 | 8·1 | 7·7 | +0·4 |
| O. Struve | 43 | 51·84 | 107·0 | 108·1 | −1·1 | 8·1 | 8·0 | +0·1 |
| Jacob | 44 | 51·88 | 107·1 | 106·5 | +0·6 | 8·1 | 8·0 | +0·1 |
| Miller | 45 | 51·90 | 107·1 | 107·0 | +0·1 | 8·1 | 8·1 | 0·0 |
| Mädler | 46 | 52·67 | 108·0 | 108·7 | −0·7 | 8·0 | 7·6 | +0·4 |
| Jacob | 47 | 52·75 | 108·0 | 108·0 | 0·0 | 8·0 | 8·0 | 0·0 |
| ,, | 48 | 53·13 | 108·5 | 109·1 | −0·6 | 7·9 | 7·9 | 0·0 |

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| Observer. | No. | Epoch. | $\theta_c$ | $\theta_o$ | $\theta_c-\theta_o$ | $\rho_c$ | $\rho_o$ | $\rho_c-\rho_o$ |
|---|---|---|---|---|---|---|---|---|
| | | | ° | ° | ° | " | " | " |
| Mädler | 49 | 1853·29 | 108·8 | 110·2 | −1·4 | 7·9 | 7·6 | +0·3 |
| „ | 50 | 53·90 | 109·5 | 112·8 | −3·3 | 7·8 | 7·5 | −0·3 |
| Peters | 51 | 53·93 | 109·5 | 109·7 | −0·2 | 7·8 | 8·2 | −0·4 |
| Powell | 52 | 53·94 | 109·5 | 109·5 | 0·0 | 7·8 | 7·6 | +0·2 |
| Jacob | 53 | 53·98 | 109·6 | 109·8 | −0·2 | 7·8 | 8·0 | −0·2 |
| Dawes | 54 | 54·00 | 109·6 | 109·6 | 0·0 | 7·8 | 7·9 | −0·1 |
| Smyth | 55 | 54·17 | 109·7 | 110·6 | −0·9 | 7·8 | 7·7 | +0·1 |
| O. Struve | 56 | 54·56 | 110·3 | 112·0 | −1·7 | 7·8 | 8·0 | −0·2 |
| Dembowski | 57 | 54·77 | 110·6 | 111·2 | −0·6 | 7·8 | 7·9 | −0·1 |
| Mädler | 58 | 54·80 | 110·6 | 111·8 | −1·2 | 7·7 | 7·6 | +0·1 |
| Powell | 59 | 54·94 | 110·8 | 111·5 | −0·7 | 7·7 | 7·5 | +0·2 |
| Morton | 60 | 54·95 | 110·8 | 111·0 | −0·2 | 7·7 | 8·1 | −0·4 |
| Dembowski | 61 | 55·08 | 111·0 | 112·8 | −1·8 | 7·7 | 7·8 | −0·1 |
| Winnecke | 62 | 55·25 | 111·2 | 110·9 | +0·3 | 7·7 | 7·9 | −0·2 |
| Mädler | 63 | 55·51 | 111·6 | 112·0 | −0·4 | 7·7 | 7·6 | +0·1 |
| Secchi | 64 | 55·79 | 111·9 | 112·2 | −0·3 | 7·6 | 7·9 | −0·3 |
| Mädler | 65 | 55·87 | 112·0 | 111·0 | +1·0 | 7·6 | 7·8 | −0·2 |
| Powell | 66 | 55·92 | 112·1 | 112·5 | −0·4 | 7·6 | 7·6 | 0·0 |
| Morton | 67 | 55·96 | 112·1 | 112·4 | −0·3 | 7·6 | 7·8 | −0·2 |
| Luther | 68 | 56·57 | 112·9 | 117·5 | −4·6 | 7·5 | 8·3 | −0·8 |
| Dembowski | 69 | 56·58 | 113·0 | 114·2 | −1·2 | 7·5 | 7·4 | +0·1 |
| „ | 70 | 57·11 | 113·7 | 114·5 | −0·8 | 7·5 | 7·3 | +0·2 |
| Secchi | 71 | 57·15 | 113·8 | 112·8 | +1·0 | 7·5 | 7·9 | −0·4 |
| O. Struve | 72 | 57·22 | 113·8 | 114·1 | −0·3 | 7·5 | 7·6 | −0·1 |
| Dembowski | 73 | 57·82 | 114·6 | 115·9 | −1·3 | 7·4 | 7·2 | +0·2 |
| „ | 74 | 58·46 | 115·6 | 115·8 | −0·2 | 7·4 | 7·3 | +0·1 |
| Mädler | 75 | 58·52 | 115·7 | 114·3 | +1·4 | 7·4 | 7·1 | +0·3 |
| „ | 76 | 59·26 | 116·7 | 115·7 | +1·0 | 7·3 | 7·0 | +0·3 |
| Powell | 77 | 59·72 | 117·4 | 116·6 | +0·8 | 7·3 | 7·0 | +0·3 |
| Morton | 78 | 59·94 | 117·7 | 117·3 | +0·4 | 7·2 | 7·1 | +0·1 |
| O. Struve | 79 | 60·68 | 118·8 | 119·8 | −1·0 | 7·1 | 7·2 | −0·1 |
| Powell | 80 | 60·97 | 119·3 | 118·3 | +1·0 | 7·1 | 7·0 | +0·1 |
| Auwers | 81 | 61·58 | 120·2 | 119·8 | +0·4 | 7·1 | 7·4 | −0·3 |
| Main | 82 | 61·82 | 120·6 | 118·1 | +2·5 | 7·0 | 6·4 | +0·6 |
| Mädler | 83 | 61·91 | 120·7 | 119·0 | +1·7 | 7·0 | 7·0 | 0·0 |
| Powell | 84 | 61·95 | 120·7 | 120·6 | +0·1 | 7·0 | 6·7 | +0·3 |
| Dembowski | 85 | 62·74 | 122·0 | 121·3 | +0·7 | 6·9 | 7·0 | −0·1 |
| Romberg | 86 | 62·86 | 122·2 | 119·1 | +3·1 | 6·9 | 7·0 | −0·1 |
| „ | 87 | 62·90 | 122·3 | 121·7 | +0·6 | 6·9 | 7·3 | −0·4 |
| „ | 88 | 63·04 | 122·5 | 122·9 | −0·4 | 6·9 | 6·9 | 0·0 |

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| Observer. | No. | Epoch. | $\theta_c$ | $\theta_o$ | $\theta_c-\theta_o$ | $\rho_c$ | $\rho_o$ | $\rho_c-\rho_o$ |
|---|---|---|---|---|---|---|---|---|
| | | | ° | ° | ° | " | " | " |
| Romberg | 89 | 1863·06 | 122·5 | 122·5 | 0·0 | 6·9 | 6·9 | 0·0 |
| „ | 90 | 63·12 | 122·6 | 121·0 | +1·6 | 6·9 | 7·0 | −0·1 |
| Luther, | 91 | 63·18 | 122·7 | 123·6 | −0·9 | 6·9 | 7·1 | −0·2 |
| Dembowski | 92 | 63·48 | 123·2 | 122·6 | +0·6 | 6·8 | 6·9 | −0·1 |
| „ | 93 | 64·10 | 124·3 | 124·5 | −0·2 | 6·8 | 6·8 | 0·0 |
| „ | 94 | 64·71 | 125·2 | 124·6 | +0·6 | 6·7 | 6·8 | −0·1 |
| „ | 95 | 65·51 | 126·7 | 126·3 | +0·4 | 6·6 | 6·7 | −0·1 |
| Knott | 96 | 65·69 | 126·9 | 125·3 | +1·6 | 6·6 | 6·7 | −0·1 |
| „ | 97 | 65·69 | 126·9 | 126·7 | +0·2 | 6·6 | 6·7 | −0·1 |
| „ | 98 | 65·70 | 126·9 | 125·2 | +1·7 | 6·6 | 6·8 | −0·2 |
| Talmage | 99 | 65·73 | 126·9 | 123·9 | +3·0 | 6·6 | 6·4 | +0·2 |
| O. Struve | 100 | 66·22 | 128·1 | 132·6 | −4·5 | 6·6 | 6·4 | +0·2 |
| Talmage | 101 | 66·63 | 128·7 | 124·6 | +4·1 | 6·5 | 6·4 | +0·1 |
| Secchi | 102 | 66·86 | 129·0 | 127·7 | +1·3 | 6·5 | 6·8 | −0·3 |
| Dembowski | 103 | 67·16 | 129·7 | 129·3 | +0·4 | 6·5 | 6·6 | −0·1 |
| Main | 104 | 67·65 | 130·4 | 129·9 | +0·5 | 6·4 | 6·3 | +0.1 |
| Dunér | 105 | 68·37 | 131·7 | 131·8 | −0·1 | 6·4 | 6·3 | +0·1 |
| O. Struve | 106 | 68·53 | 132·1 | 132·9 | −0·8 | 6·4 | 6·4 | 0·0 |
| Dembowski | 107 | 68·55 | 132·1 | 132·4 | −0·3 | 6·4 | 6·3 | +0·1 |
| Brünnow | 108 | 68·84 | 132·8 | 131·5 | +1·3 | 6·3 | 6·3 | 0·0 |
| Talmage | 109 | 68·89 | 132·8 | 124·3 | +8·5 | 6·3 | 6·2 | +0·1 |
| Main | 110 | 69·67 | 134·3 | 132·4 | +1·9 | 6·3 | 6·1 | +0·2 |
| Dembowski | 111 | 69·68 | 134·3 | 134·1 | +0·2 | 6·3 | 6·2 | +0·1 |
| Talmage | 112 | 69·72 | 134·3 | 124·8 | +9·5 | 6·3 | 6·6 | −0·3 |
| Dunér | 113 | 69·93 | 134·7 | 135·2 | −0·5 | 6·2 | 6·1 | +0·1 |
| O. Struve | 114 | 70·18 | 135·3 | 136·2 | −0·9 | 6·2 | 6·3 | −0·1 |
| Dembowski | 115 | 70·52 | 136·0 | 135·4 | +0·6 | 6·2 | 6·2 | 0·0 |
| Gledhill | 116 | 70·65 | 136·3 | 135·7 | +0·6 | 6·2 | 6·1 | +0·1 |
| „ | 117 | 70·70 | 136·3 | 138·8 | −2·5 | 6·2 | 6·1 | +0·1 |
| „ | 118 | 70·80 | 136·5 | 136·0 | +0·5 | 6·1 | 6·0 | +0·1 |
| Dembowski | 119 | 71·56 | 138·1 | 137·5 | +0·6 | 6·1 | 6·1 | 0·0 |
| Gledhill | 120 | 71·60 | 138·3 | 137·6 | +0·7 | 6·1 | 6·1 | 0·0 |
| „ | 121 | 71·80 | 138·7 | 138·3 | +0·4 | 6·1 | 6·0 | +0·1 |
| Wilson & Seab. | 122 | 71·93 | 139·0 | 140·9 | −1·9 | 6·0 | — | |
| „ | 123 | 72·01 | 139·2 | — | | 6·0 | 6·0 | 0·0 |
| O. Struve | 124 | 72·18 | 139·5 | 140·8 | −1·3 | 6·0 | 5·9 | −0·1 |
| Dunér | 125 | 72·50 | 140·1 | 140·5 | −0·4 | 6·0 | 6·6 | −0·6 |
| Dembowski | 126 | 72·62 | 140·3 | 139·1 | +1·2 | 6·0 | 6·0 | 0·0 |
| Knott | 127 | 72·65 | 140·6 | 138·0 | +2·6 | 6·0 | 6·1 | −0·1 |
| „ | 128 | 72·65 | 140·6 | 137·7 | +2·9 | 6·0 | 6·1 | −0·1 |

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| Observer. | No. | Epoch. | $\theta_c$ | $\theta_o$ | $\theta_c-\theta_o$ | $\rho_c$ | $\rho_o$ | $\rho_c-\rho_o$ |
|---|---|---|---|---|---|---|---|---|
| Knott | 129 | 1872·66 | 140°·6 | 138°·0 | +2°·6 | 6″·0 | 6″·0 | 0″·0 |
| ,, | 130 | 72·66 | 140·6 | 137·7 | +2·9 | 6·0 | 6·1 | −0·1 |
| Main | 131 | 72·77 | 140·8 | 143·9 | −3·1 | 6·0 | 5·9 | +0·1 |
| Talmage | 132 | 72·86 | 140·9 | 124·4 | +16·5 | 6·0 | 6·3 | −0·3 |
| Wilson & Seab. | 133 | 73·06 | 141·4 | 142·3 | −0·9 | 6·0 | — | |
| Gledhill | 134 | 73·51 | 142·4 | 143·1 | −0·7 | 5·9 | 6·1 | −0·2 |
| O. Struve | 135 | 73·53 | 142·4 | 144·6 | −2·2 | 5·9 | 5·7 | +0·2 |
| Dembowski | 136 | 73·65 | 142·6 | 140·7 | +1·9 | 5·9 | 5·8 | +0·1 |
| Gledhill | 137 | 73·73 | 142·9 | 143·8 | −0·9 | 5·9 | 5·8 | +0·1 |
| ,, | 138 | 73·81 | 143·0 | 144·3 | −1·3 | 5·9 | — | |
| Wilson & Seab. | 139 | 73·83 | 143·0 | 144·7 | −1·7 | 5·9 | 6·2 | −0·3 |
| ,, | 140 | 73·83 | 143·0 | — | | 5·9 | 6·6 | −0·7 |
| ,, | 141 | 73·83 | 143·0 | — | | 5·9 | 6·2 | −0·3 |
| Talmage | 142 | 73·86 | 143·0 | 141·2 | +1·8 | 5·9 | 5·7 | +0·2 |
| Nobile | 143 | 73·98 | 143·5 | 143·6 | −0·1 | 5·9 | — | |
| Dunér | 144 | 74·22 | 144·0 | 144·9 | −0·9 | 5·9 | 5·7 | +0·2 |
| Dembowski | 145 | 74·63 | 144·8 | 142·5 | +2·3 | 5·8 | 5·8 | 0·0 |
| Wilson & Seab. | 146 | 74·90 | 145·6 | 146·0 | −0·4 | 5·8 | 5·8 | 0·0 |
| O. Struve | 147 | 75·15 | 146·1 | 148·6 | −2·5 | 5·8 | 5·6 | +0·2 |
| Dunér | 148 | 75·51 | 146·9 | 146·7 | +0·2 | 5·8 | 5·7 | +0·1 |
| Dembowski | 149 | 75·60 | 147·2 | 146·2 | +1·0 | 5·8 | 5·7 | +0·1 |
| Gledhill | 150 | 75·69 | 147·2 | 147·5 | −0·3 | 5·7 | — | |
| Main | 151 | 75·78 | 147·3 | 146·1 | +1·2 | 5·7 | 5·8 | −0·1 |
| Doberck | 152 | 75·93 | 147·8 | 147·8 | 0·0 | 5·7 | — | |
| Gledhill | 153 | 76·37 | 148·7 | 147·9 | +0·8 | 5·7 | 5·6 | +0·1 |
| Talmage | 154 | 76·86 | 150·0 | 149·3 | +0·7 | 5·7 | 4·7 | +1·0 |
| Dembowski | 155 | 76·94 | 150·1 | 149·9 | +0·2 | 5·7 | 5·6 | +0·1 |
| Gledhill | 156 | 77·41 | 151·4 | 149·9 | +1·5 | 5·6 | — | |
| Doberck | 157 | 77·76 | 152·3 | 150·2 | +2·1 | 5·6 | 5·7 | −0·1 |
| Wilson & Seab. | 158 | 77·95 | 152·8 | 153·5 | −0·7 | 5·6 | 5·3 | +0·3 |
| Gledhill | 159 | 78·67 | 154·4 | 153·3 | +1·1 | 5·6 | — | |
| Hall | 160 | 78·86 | 154·9 | 154·5 | +0·4 | 5·5 | 5·3 | +0·2 |
| ,, | 161 | 78·97 | 155·3 | 154·7 | +0·6 | 5·5 | 5·4 | +0·1 |
| ,, | 162 | 78·97 | 155·3 | 155·5 | −0·2 | 5·5 | 5·5 | 0·0 |
| ,, | 163 | 79·06 | 155·6 | 156·2 | −0·6 | 5·5 | 5·3 | +0·2 |
| ,, | 164 | 79·06 | 155·6 | 160·8 | −5·2 | 5·5 | 5·2 | +0·3 |
| ,, | 165 | 79·06 | 155·6 | 156·0 | −0·4 | 5·5 | 5·4 | +0·1 |
| ,, | 166 | 1879·08 | 155·6 | 160·2 | −4·6 | 5·5 | 5·3 | +0·2 |